

REMARKS

Applicants appreciate the Examiner's thorough consideration provided the present application. Claims 1-14 are now present in the application. The specification, the abstract, the drawings, and claims 1, 2, 4 and 7-9 have been amended. Claims 10-14 have been added. Claim 1 is independent. Reconsideration of this application, as amended, is respectfully requested.

Priority Under 35 U.S.C. §119

Applicants thank the Examiner for acknowledging Applicants' claim for foreign priority under 35 U.S.C. §119, and receipt of the certified priority document.

Information Disclosure Citation

Applicants have submitted the references supplied with the Information Disclosure Statement filed on January 24, 2005 for consideration by the Examiner. However, Applicants have not received an initialed copy of the PTO-1449 form indicating that the references have been considered by the Examiner. The Examiner is courteously requested to provide Applicants with an initialed copy of the PTO-1449 form filed therewith with the next official communication.

Drawings Objections

The drawings have been objected to under 37 C.F.R. § 1.83(a). Applicants have submitted two (2) sheets of corrected formal drawings to address the Examiner's requested changes. Accordingly, Applicants respectfully submit that this objection has been obviated

and/or rendered moot. Reconsideration and withdrawal of the Examiner's drawings objection are respectfully requested.

Specification

The specification and the abstract have been amended to remove the minor informalities and to conform to the changes made in the drawings. Applicants respectfully submit that no new matter is entered. Entry of the above amendments is earnestly solicited.

Claim Rejections Under 35 U.S.C. §112

Claims 1-9 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. This rejection is respectfully traversed.

In view of the foregoing amendments, it is respectfully submitted that this rejection has been addressed. In particular, FIGs. 4 and 5 show that the magnetic barriers 201 are located at an inner side surface of the cage rotor 115 and the magnetic barriers 202 are located at the outer circumferential surface of the cage rotor 115. FIGs. 4 and 5 also show that each of the cage rotor 115, the magnetic barriers 201, and the magnetic barriers 202 has the same number of poles (e.g., six poles in the illustrated embodiment). Accordingly, all pending claims are now definite and clear. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 112, second paragraph, are therefore respectfully requested.

Claim Rejections Under 35 U.S.C. § 103

Claims 1-9 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Background art disclosed in the present invention in view of Leibovich, U.S. Patent No. 4,761,602, in view of Henneberger, Germany Patent No. DE 3609351, and further in view of Koharagi, U.S. Patent No. 6, 525,442. This rejection is respectfully traversed.

A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

Independent claim 1 recites a combination of elements including "a single phase stator...", "a magnet unit free-rotatably arranged along an inner circumferential surface of the stator in order to maintain an air gap with the stator", and "a cage rotor provided with a rotation shaft at a center portion thereof to be rotatable along an inner circumferential surface of the magnet unit". Applicants respectfully submit that the combination of elements as set forth in independent claim 1 is not disclosed or suggested by references relied on by the Examiner.

The Examiner has correctly acknowledged that Leibovich fails to teach the magnet unit as recited in claim 1. However, the Examiner alleged that Henneberger's rotor 23 is the magnet unit of claim 1. Applicants respectfully disagree.

In particular, Henneberger discloses a brushless electric motor including an outer stator 26, an inner stator 27, and a rotor 23 between the outer stator 26 and the inner stator 27 (see Abstract and FIG. 5). Although Henneberger in its Abstract also refereed to the inner stator 27 as the "inner rotor 27", it is believed that it is typographical error because the entire specification of Henneberger refers to the element 27 as the inner stator 27.

Since Henneberger merely discloses a rotor 23 between two stationary stators 26 and 27 and fails to teach any magnet unit between the rotor 23 and either of the stators 26 and 27, Henneberger fails to teach “a magnet unit free-rotatably arranged along an inner circumferential surface of the stator in order to maintain an air gap with the stator” and “a cage rotor ... to be rotatable along an inner circumferential surface of the magnet unit” as recited in claim 1.

In addition, since Henneberger's rotor 23 is located between two stationary stators 26 and 27, one skilled in the art would not have the motivation to locate the rotor 23 between Leibovich's stationary stator 30 and non-stationary rotor 44.

Furthermore, although Leibovich discloses that the stator is a single phase stator (see claim 23), Henneberger discloses that the outer stator 26 has a multiple phase stator winding 28 and the inner stator 27 carries a stator winding 29 with an identical design to that of the outer stator 26 (see Abstract). In other words, Henneberger discloses that the outer and inner stators 26 and 27 are multiple phase stators. Therefore, one skilled in the art would not have the motivation to modify Leibovich's single phase stator design in view of Henneberger's multiple phase stator design.

With regard to the Examiner's reliance on Koharagi, this reference has only been relied on for its teachings of recesses. Koharagi also fails to disclose the above combination of elements as set forth in independent claim 1. Accordingly, this reference fails to cure the deficiencies of Leibovich and Henneberger. In addition, Koharagi discloses a permanent magnet rotor (see Abstract) rather than a cage rotor. Therefore, one skilled in the art would not have the motivation to modify Leibovich's cage rotor in view of Koharagi's permanent magnet rotor because they are designed based on significantly different principles.

Accordingly, none of the references utilized by the Examiner individually or in combination teach or suggest the limitations of independent claim 1. Therefore, Applicants respectfully submit that independent claim 1 clearly defines over the teachings of the utilized references.

In addition, claims 2-9 depend, either directly or indirectly, from independent claim 1, and are therefore allowable based on their respective dependence from independent claim 1, which is believed to be allowable.

In view of the above remarks, Applicants respectfully submit that claims 1-9 clearly define the present invention over the references relied on by the Examiner. Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. § 103 are respectfully requested.

Additional Claims

Claims 10-14 have been added for the Examiner's consideration. Applicants respectfully submit that claims 10-14 depend, either directly or indirectly, from independent claim 1, and are therefore allowable based on their dependence from independent claim 1, which is believed to be allowable. Consideration and allowance of claims 10-14 are respectfully requested.

Additional Cited References

Since the remaining patents cited by the Examiner have not been utilized to reject the claims, but rather to merely show the state of the art, no further comments are necessary with respect thereto.

CONCLUSION

All the stated grounds of rejection have been properly traversed and/or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently pending rejections and that they be withdrawn.

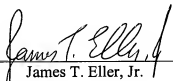
It is believed that a full and complete response has been made to the Office Action, and that as such, the Examiner is respectfully requested to send the application to Issue.

In the event there are any matters remaining in this application, the Examiner is invited to contact the undersigned at (703) 205-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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AMENDMENTS TO THE DRAWINGS

Attached hereto are two (2) sheets of corrected formal drawings that comply with the provisions of 37 C.F.R. § 1.84. The corrected formal drawings incorporate the following drawing changes:

In FIG. 4, the reference numeral "202" has been replaced by the reference numeral "133".

In FIG. 5, the reference numeral "202" has been replaced by the reference numeral "133"; the reference numeral "202" has been added to refer to the magnetic barriers at the outer circumferential surface of the cage rotor 115.

It is respectfully requested that the corrected formal drawings be approved and made a part of the record of the above-identified application.